

Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims:

1. (Currently Amended) A medical electrical lead, comprising:
a plurality of elongated conductors;
a lead body having an elastomeric multi-lumen tube including an individual conductor lumen for each of the plurality of conductors, one of the individual conductor lumens ~~a lumen, the lumen~~ including an inner surface forming a substantially elliptical cross-section, the cross-section including a minor axis having a first length in a relaxed state and being deformable such that the first length of the minor axis extends to a second length, the second length greater than the first length; and
~~an~~ one of the elongated conductor conductors extending within the substantially elliptical cross-section individual conductor lumen and including a substantially circular cross-section having an outer diameter greater than the first length, said elongated conductor contacting the inner surface to maintain the lumen in a deformed state wherein the minor axis has a length greater than the first length.
2. (Cancelled)
3. (Original) The lead of claim 1, further comprising a sheath formed about the conductor and including a sheath outer diameter and wherein the sheath outer diameter is approximately equal to or greater than the first length of the minor axis of the cross-section of the lumen.

4. (Original) The lead of claim 3, wherein the sheath comprises a fluoro-polymer.
5. (Original) The lead of claim 1, wherein the inner surface of the lumen is lubricious.
6. (Original) The lead of claim 1, wherein the conductor is in the form of a coil.
7. (Original) The lead of claim 6, further comprising an extendable and retractable electrode and a connector pin contact coupled to the electrode via the conductor; wherein the connector pin contact rotates the coil to extend and retract the electrode.
8. (Original) The lead of claim 6, further comprising an elongated insulated conductor and wherein the coil includes a lumen through which the insulated conductor extends.
9. (Original) The lead of claim 1, wherein the conductor is in the form of a cable.
10. (Original) The lead of claim 1, wherein the substantially elliptical cross-section of the lumen further includes a major axis dividing the cross-section into asymmetrical sections.
11. (Original) The lead of claim 1, wherein the inner surface of the lumen includes a flattened portion.
12. (Original) The lead of claim 1, wherein the tube further includes a plurality of lumens and a minimum wall thickness between each of the plurality of lumens

and between each of the plurality of lumens and the lumen including a substantially elliptical cross-section is between approximately 0.002 inch and approximately 0.015 inch.

13. (Original) The lead of claim 12, wherein the minimum wall thickness is between approximately 0.002 inch and approximately 0.008 inch.

14. (Original) The lead of claim 12, wherein the tube includes a center point and wherein each of the plurality of lumens and the lumen including a substantially elliptical cross-section include a center point offset from the center point of the tube.

15. (Original) The lead of claim 12, wherein the plurality of lumens comprise three lumens.

16. (Original) The lead of claim 12, wherein each of the plurality of lumens includes an inner surface forming a substantially circular cross-section.

17. (Original) The lead of claim 12, further comprising a conductor extending within at least one of the plurality of lumens.

18. (Original) The lead of claim 1, further comprising an overlay sheath formed about the multi-lumen tube.

19. (Original) The lead of claim 18, further comprising an electrode including an outer diameter and wherein the overlay sheath includes an outer diameter approximately equal to the outer diameter of the electrode.

20. (Original) The lead of claim 1, wherein the multi-lumen tube is formed of a material comprising silicone rubber.

21. (Original) The lead of claim 1, wherein the multi-lumen tube is formed of a material comprising polyurethane.

22. (Original) The lead of claim 1, wherein the multi-lumen tube is formed of a material comprising silicone and polyurethane.

23. (Original) The lead of claim 1, wherein an intersection of the substantially circular cross-section of the conductor and the inner surface of the lumen forms two separate spaces having substantially crescent-shaped cross-sections.

24. (Original) The lead of claim 23, wherein the conductor includes a sheath formed thereover.

25. (Original) The lead of claim 24, wherein the sheath comprises a fluoropolymer.

26. (Original) The lead of claim 23, wherein the inner surface of the lumen is lubricious.

27. (Original) The lead of claim 23, wherein the conductor is in the form of a coil.

28. (Original) The lead of claim 27, further comprising an extendable and retractable electrode and a connector pin contact coupled to the electrode via the conductor; wherein the connector pin contact rotates the coil to extend and retract the electrode.

29. (Original) The lead of claim 27, further comprising an elongated insulated conductor and wherein the coil includes a lumen through which the insulated conductor extends.

30. (Original) The lead of claim 23, wherein the conductor is in the form of a cable.

31. (Original) The lead of claim 23, wherein the substantially elliptical cross-section of the lumen further includes a major axis dividing the cross-section into asymmetrical sections.

32. (Original) The lead of claim 23, wherein the inner surface of the lumen includes a flattened portion.

33. (Original) The lead of claim 23, wherein the tube further includes a plurality of lumens and a minimum wall thickness between each of the plurality of lumens and between each of the plurality of lumens and the lumen including a substantially elliptical cross-section is between approximately 0.002 inch and approximately 0.015 inch.

34. (Original) The lead of claim 33, wherein the minimum wall thickness is between approximately 0.002 inch and approximately 0.008 inch.

35. (Original) The lead of claim 33, wherein the tube includes a center point and wherein each of the plurality of lumens and the lumen including a substantially elliptical cross-section include a center point offset from the center point of the tube.

36. (Original) The lead of claim 33, wherein the plurality of lumens comprise three lumens.

37. (Original) The lead of claim 33, wherein each of the plurality of lumens includes an inner surface forming a substantially circular cross-section.

38. (Original) The lead of claim 33, further comprising a conductor extending within at least one of the plurality of lumens.

39. (Original) The lead of claim 23, further comprising an overlay sheath formed about the multi-lumen tube.

40. (Original) The lead of claim 39, further comprising an electrode including an outer diameter and wherein the overlay sheath includes an outer diameter approximately equal to the outer diameter of the electrode.

41. (Original) The lead of claim 23, wherein the multi-lumen tube is formed of a material comprising silicone rubber.

42. (Original) The lead of claim 23, wherein the multi-lumen tube is formed of a material comprising polyurethane.

43. (Original) The lead of claim 23, wherein the multi-lumen tube is formed of a material comprising silicone and polyurethane.

44-56. (Cancelled)

57. (Previously Presented) A medical lead having a compact profile, comprising:

an elongated elastomeric tubing;

a lumen through said elongated elastomeric tubing having an inner surface forming a substantially elliptical cross-section including a minor axis and a major axis, said lumen inwardly deformable along the major axis; and

an elongated conductor residing within said lumen and contacting said inner surface at a first position and a second substantially opposite position to reduce the length of the major axis, the first position and the second position each located proximate the minor axis.